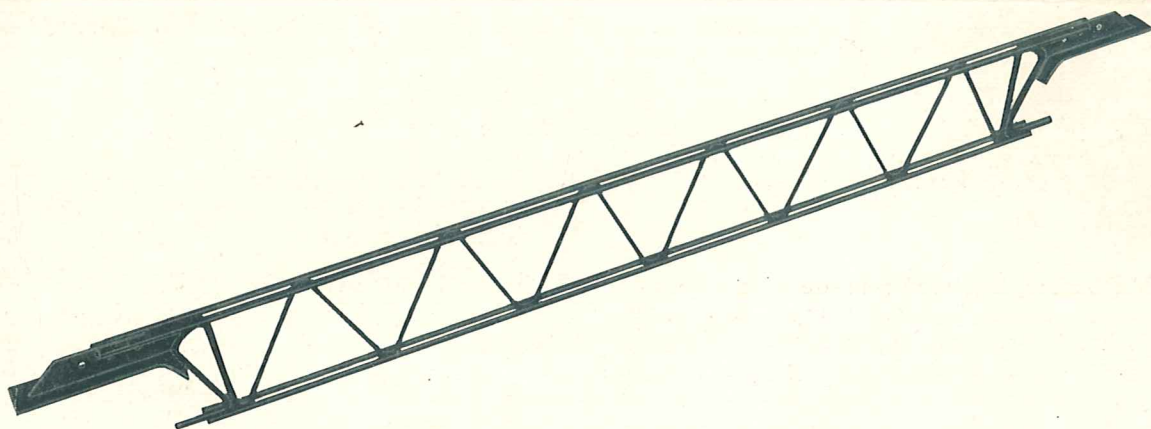
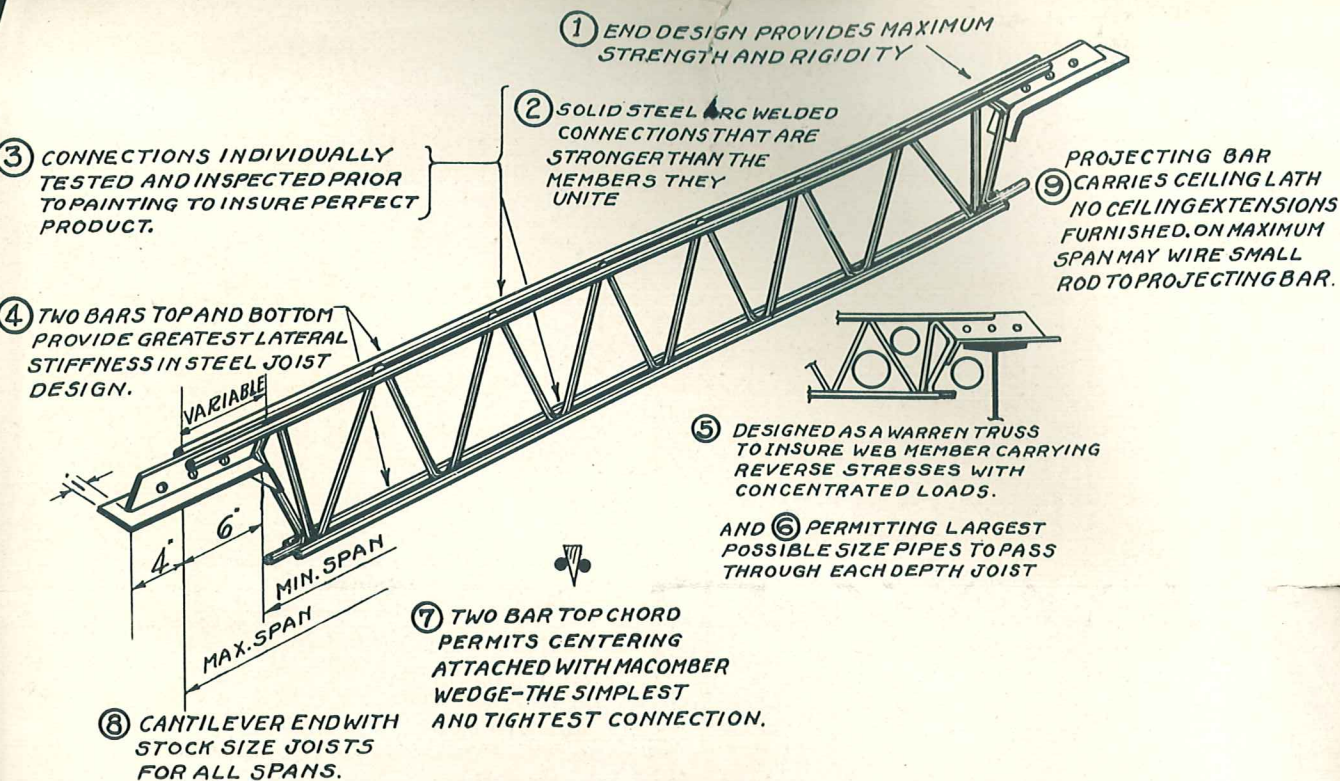


MACOMBER BAR JOISTS



An Improved Product
Rugged - Dependable
Even More Practicable

THE MACOMBER STEEL COMPANY
CANTON, OHIO



The Macomber Bar Joist is designed to adequately meet the Steel Joist Institute specifications, the rough handling of field operations, and reasonable concentration applied during construction operations.

The Web Members are the most important member of a bar joist. The Webs of the Macomber joist are a round bar. This gives each compression member equal strength in all directions. The computation of the web strength is in accordance with standard practice, and no reliance is placed upon cross or secondary members.

The connections between the various parts of the Macomber joist are made by the electric arc welding process. Welding metal is added at each point of connection, and melded with the members. The result is a solid welded steel connection, dependable, durable and open to the closest field inspection. No metal is stretched or distorted in the manufacture of Macomber joists.

The Top Chord of the Macomber joists consists of two round bars spaced apart by the insertion between them of the web member. These round members, functioning in compression, have equal strength in all directions. The metal is grouped close to the connections and the spread of the bars gives a high degree of lateral rigidity. The Macomber top chord provides unusual opportunity for attaching metal lath and other accessory material items, in a definite and positive fashion.

The Bottom Chord of the Macomber joist consists of two round bars spaced apart by the insertion between them of the web member. This design is consistent with the top chord, and retains the top

chord advantages in the bottom chord. The bottom bars are straight and connect at their ends with the end piece.

The Lateral Rigidity of the Macomber joist is an important item to the contractor. It not only makes erection work easier but gives less liability of failure in case of accidental excess construction load concentrations. An analysis of the cross section explains the greater ruggedness and lateral stiffness of this joist.

The End Piece of the Macomber joist is symmetrical and extremely rugged. The design of the end piece provides the span flexibility of the joist and supports the ceiling lath through to the wall. The bearing plate for each size joist is amply wide to give sufficient bearing area on masonry. This is important to the Architect.

The Span Flexibility of the Macomber joist has been an inherent factor of this joist from its first inception. Each standard joist can be used over a range of 12" in span. This adaptability and flexibility enhance the value of the product to contractor and owner. It also gives a practically 100% salvage value.

The Ceiling: Because of the flexibility of span on which Macomber joists can be used, there may be a space between the end of the bottom chord of the joist and the supporting wall on beam. This condition is illustrated. The maximum distance of this space is seven inches and in the average installation is about three inches. Metal lath spans considerably more than seven inches as, for instance, between joists. The lath should always be fastened to the wall or beam in any case, and turned down for

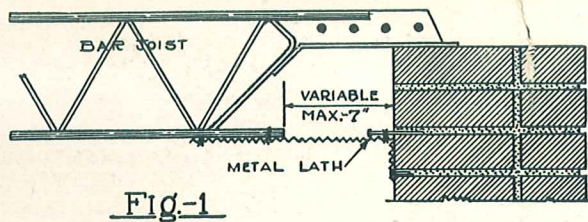


Fig-1

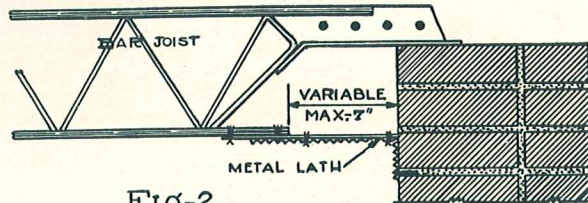


Fig-2

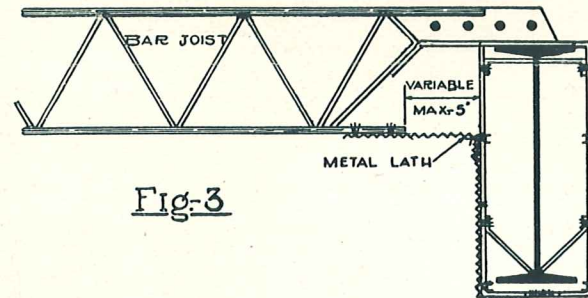


Fig-3

Detail of ceiling construction at end of joist. No annoying accessory necessary at this point for the contractor to store, handle or install. We do not furnish a ceiling extension.

several inches. This to prevent corner cracking of plaster. No support is needed over this space. The details shown are practical, economical, and give positive results. Where for some reason support is desired, a short piece of bar, or small channel, can be furnished by the contractor, and wired to the bottom chord of the joist. In this fashion, the Macomber Joist has again been simplified and improved. Cost of applying ceiling lath is reduced and the trouble in handling of accessory materials eliminated.

The Metal Thickness of the Macomber joist is a point of importance. After the completion of a building, the joists, a structural member, are in place out of sight to do their work for an indefinite period of time. Sturdy members, of good thick metal, have no disadvantage. Even on the smallest joists, down to four foot spans, no bar less than $\frac{3}{8}$ " in diameter, is used. Vertical plates $\frac{1}{4}$ " in thickness are used, and bearing plates never less than $\frac{3}{16}$ " thick.

The Design of the Macomber joist is a warren truss. This provides for the webs taking care of concentrated loads at various points, gives a sturdy, dependable member, and all stresses are subject to simple calculations.

The Appearance of the Macomber joist gives the impression of reserve strength and capacity. It is symmetrical in section and well proportioned in length and depth. The round bars make the sturdi-

Figure No. 1

Metal Lath carried through to the wall turned down and nailed in place.

Ceiling lath should be turned down a few inches along walls to prevent corner cracking.

Figure No. 2

Showing a small rod or channel wired to the extension rod on the joist.

When for any reason it is deemed necessary to have special support across this short distance the contractor can supply a small rod and wire to the joist. In any case the lath should be turned down along the wall and nailed in place.

Figure No. 3

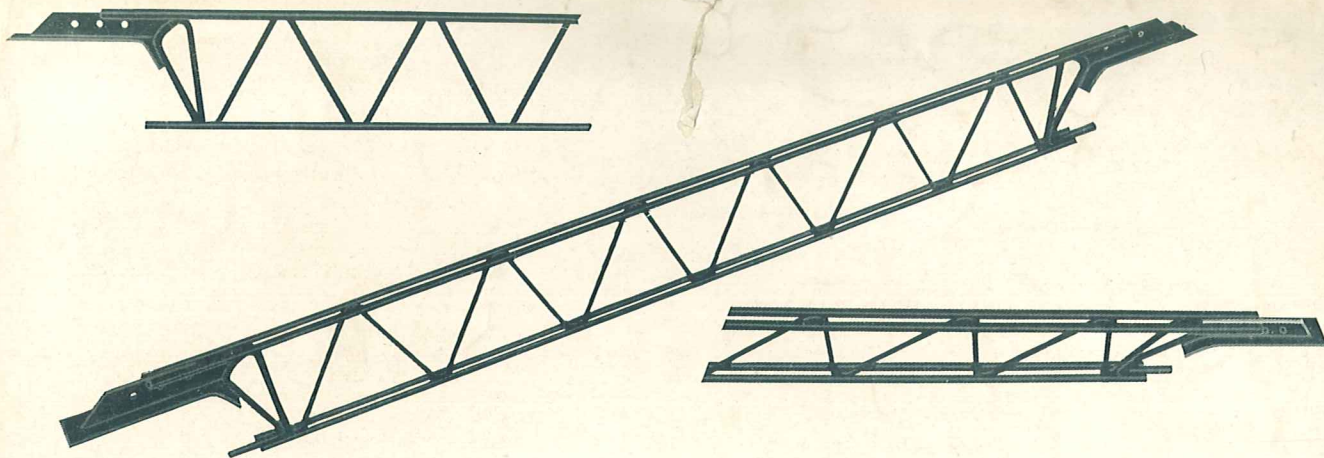
Metal lath extended to beam furring. Beam furring can be hung from the joists.

Even for this detail ceiling, lath should be turned down along beam furring. Being fastened on the support side the lath will space several times this distance as it does between joists.

ness of the joist apparent. It is painted with a dip coat of high grade black paint. Every line and detail of this joist evidences exactly what it is: a solid, self contained, rugged, practical, workman-like device to do just one thing, and do it well, with the least amount of assistance.

The Macomber organization initially conceived the Bar Joist, and reduced its use to a practical basis. Improvements have been made in the details of the joist from time to time during the last eight years. The Macomber Bar Joist of today is the same design as the first product, but the refinements and improvements resulting from experience and practice, give it greater strength, ruggedness and durability. As a practical product for practical application by the Architect and the Contractor, we believe our improvements during the last year materially enhance its value.

We have a pardonable pride in being the originators of the Bar Joist, and have endeavored to maintain a high quality of product and service. In our humble opinion, the Macomber joist has not as yet been equalled for certainty in manufacture, definiteness and positiveness of design, dependability and all around sturdiness. We guarantee the product to function as the purchaser has a right to expect, and invite the most critical inspection, analysis and comparison. We believe that the Macomber joist embodies every meritorious feature that a bar joist should have, and which the buying public wants.



THE MACOMBER BAR JOIST DESCRIPTIVE DETAIL

Joist Size	Minimum Bearing Area	Max. Bearing Stress Lbs. Per Sq. Inch	Area Top Chord	Area Bottom Chord	Area End Web Bar	Area Intermed. Web Bar	Area Center Web Bar	Area End Piece Bar
81	7.5	213	.3240	.2268	.162	----	.1134	.1963
82	7.5	212	.5104	.3926	.1963	----	.1134	.1963
102	7.5	214	.5104	.3926	.1963	----	.162	.2552
103	7.5	227	.6136	.5104	.1963	----	.162	.2552
104	11.5	170	.7264	.6136	.1963	----	.162	.3068
123	11.5	167	.6946	.4515	.2552	.1963	.162	.3068
ft. Rdg. → 124	11.5	175	.8602	.5620	.2552	.1963	.162	.3068
125	11.5	196	.8602	.7264	.2552	.1963	.162	.4301
126	11.5	192	1.041	.8602	.3068	.2552	.162	.4301
145	11.5	226	.8602	.7264	.3068	.2552	.1963	.4301
146	15.5	183	1.041	.8602	.3068	.2552	.1963	.5204
147	15.5	203	1.250	1.041	.3632	.3068	.1963	.5204
166	15.5	192	1.041	.8602	.3632	.2552	.2552	.5204
167	15.5	215	1.250	1.041	.3632	.3068	.2552	.5204

Standard loading tables giving the carrying capacity of the joists are all calculated in accordance with the specifications of the Steel Joist Institute and on the basis of the joists being braced laterally as in the finished floor construction.

For loading tables, information as to accessories, and prices, communicate with our nearest dealer or direct with our Canton Headquarters.

The Macomber Steel Company - Canton, Ohio